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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/824,035

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Jian-Hsing Lee

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03/09/2006

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EXAMINER

VU, HUNG K

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/824,035	<b>Applicant(s)</b> LEE ET AL.	
	<b>Examiner</b> Hung Vu	<b>Art Unit</b> 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-10 is/are rejected.
- 7) ☐ Claim(s) 6 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/14/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election of Invention of Embodiment of Figure 4, claims 1-6 and 8-11, in the reply filed on 01/19/06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Applicant's election without traverse of Embodiment of Figure 4, claims 1-6 and 8-11 in the reply filed on 01/19/06 is acknowledged.

Claims 7 and 12 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 01/29/06.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior of Figures 1-3 in view of Huang et al. (PN 6,762,466).

Applicants' Admitted Prior of Figures 1-3 disclose a bonding pad structure, comprising:

a bonding pad substantially surrounded and insulated by a dielectric layer (15), wherein the bonding pad comprises at least one first conductive layer (12) having a wiring layer with a

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tripe layout and a first edge portion and second conductive layer (13) having a wire bonding portion a second edge portion and a plurality of plugs (16) electrically connecting the wiring layer and the wire bonding portion.

Applicants' Admitted Prior of Figures 1-3 do not disclose a conductive structure connecting the first edge portion and the second edge portion. However, Huang et al. discloses a bonding pad structure comprises a first conductive layer (222,208) having a first edge portion and a second conductive layer (226,204) having a second edge portion, and a conductive structure (224) connecting the first edge portion and the second edge portion. Note Figures 3-4 of Huang et al.. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the bonding pad structure having a conductive structure connecting the first edge portion and the second edge portion, such as taught by Huang et al. in order to discharge a layer current through multiple paths and to improve the circuit protection capacity.

Regarding claims 2 and 9, Applicants' Admitted Prior of Figures 1-3 and Huang et al. disclose the structure further comprising an electrostatic discharge (ESD) protection device (28) electrically connected to the first conductive layer.

Regarding claims 3 and 10, Applicants' Admitted Prior of Figures 1-3 and Huang et al. disclose a material of the IMD layer is a low dielectric constant material (silicon oxide).

Regarding claim 4, Applicants' Admitted Prior of Figures 1-3 and Huang et al. disclose the first conductive layer is a metal layer.

Regarding claim 5, Applicants' Admitted Prior of Figures 1-3 and Huang et al. disclose the second conductive layer is a metal layer.

Regarding claim 8, Applicants' Admitted Prior of Figures 1-3 disclose a bonding pad structure, comprising:

- a substrate (12) having an interlevel dielectric (ILD) layer thereon,
- a bonding pad formed on the ILD layer and substantially surrounded and insulated by a dielectric layer (15), wherein the bonding pad comprises at least one first conductive layer (12) having a wiring layer with a tripe layout and a first edge portion and second conductive layer (13) having a wire bonding portion a second edge portion and a plurality of plugs (16) electrically connecting the wiring layer and the wire bonding portion.

Applicants' Admitted Prior of Figures 1-3 do not disclose a conductive structure connecting the first edge portion and the second edge portion. However, Huang et al. discloses a bonding pad structure comprises a first conductive layer (222,208) having a first edge portion and a second conductive layer (226,204) having a second edge portion, and a conductive structure (224) connecting the first edge portion and the second edge portion. Note Figures 3-4 of Huang et al.. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the bonding pad structure having a conductive structure connecting the first edge portion and the second edge portion, such as taught by Huang et al. in order to discharge a layer current through multiple paths and to improve the circuit protection capacity.

***Allowable Subject Matter***

3. Claims 6 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is an examiner's statement of reasons for allowance:

Applicant's claims 6 and 11 are allowable over the references of record because none of these references disclose or can be combined to yield the claimed bonding pad structure having the conductive structure being an array of metal plugs.

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Vu whose telephone number is (571) 272-1666. The examiner can normally be reached on Tuesday to Friday 6:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272 - 1732. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Vu

March 4, 2006

A handwritten signature in cursive script, appearing to read "Hung Vu", written over a horizontal line.

Hung Vu

Primary Examiner